

Clean Version of Pending New Claims 63-201

63 (New). Apparatus for delivering material into bone comprising a cannula for establishing a subcutaneous path into bone, and a tamping instrument having a tamping terminus, the tamping instrument being sized and configured for manipulation independent of the cannula to enable insertion of the tamping instrument into the cannula, advancement of the tamping terminus in the cannula to urge material residing in the cannula into bone, and withdrawal of the tamping terminus from the cannula.

64 (New). Apparatus according to claim 63 wherein the cannula has a length, and wherein the length of the tamping instrument exceeds the length of the cannula.

65 (New). Apparatus according to claim 63 wherein a removable handle is carried by the proximal end of the cannula.

66 (New). Apparatus according to claim 63 wherein a handle is carried by the proximal end of the tamping instrument.

67 (New). Apparatus according to claim 66 wherein, when the tamping instrument is fully inserted into the cannula, the handle is adjacent the proximal end of the cannula.

68 (New). Apparatus according to claim 63 wherein the cannula includes at least one radiopaque marker.

69 (New). Apparatus according to claim 63 wherein the cannula comprises a generally rigid material.

70 (New). Apparatus according to claim 63 wherein the tamping instrument comprises a generally rigid material.

71 (New). Apparatus according to claim 63 wherein the tamping instrument has a blunt distal end.

72 (New). Apparatus according to claim 63 wherein the cannula has a blunt distal end.

73 (New). Apparatus according to claim 63 wherein the tamping instrument and the cannula each have a blunt distal end.

74 (New). Apparatus according to claim 63 further comprising a delivery device to convey material into the cannula.

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75 (New). Apparatus according to claim 63
wherein the tamping instrument includes at least one marking to visually gauge the advancement of the terminus relative to the distal end of the cannula.

76 (New). Apparatus according to claim 75
wherein the at least one marking indicates when the distal end of the tamping instrument is aligned with the distal end of the cannula instrument.

77 (New). Apparatus according to claim 63
wherein the tamping instrument includes a set point marking spaced from the terminus at a distance generally equal to the length of the cannula.

78 (New). Apparatus according to claim 76
wherein the tamping instrument includes at least one additional marking to visually gauge advancement of the terminus relative to the distal end of the cannula.

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79 (New). Apparatus for delivering material into bone comprising
a cannula for establishing a subcutaneous path into bone, the cannula being sized and configured to accept insertion and withdrawal of a first instrument in the cannula, and
a tamping instrument separate from the first instrument having a tamping terminus, the tamping instrument being sized and configured for manipulation independent of the cannula to enable insertion of the tamping instrument into the cannula and advancement of the tamping terminus in the cannula to urge material residing in the cannula into bone.

80 (New). Apparatus according to claim 79
wherein the cannula has a length, and
wherein the length of the tamping instrument exceeds the length of the cannula.

81 (New). Apparatus according to claim 79
wherein a removable handle is carried by the proximal end of the cannula.

82 (New). Apparatus according to claim 79
wherein a handle is carried by the proximal end of the tamping instrument.

83 (New). Apparatus according to claim 82
wherein, when the tamping instrument is fully inserted into the cannula, the handle is next to the proximal end of the cannula.

84 (New). Apparatus according to claim 79
wherein the cannula includes at least one radiopaque marker.

85 (New). Apparatus according to claim 79

wherein the cannula comprises a generally rigid material.

86 (New). Apparatus according to claim 79

wherein the tamping instrument comprises a generally rigid material.

87 (New). Apparatus according to claim 79

wherein the cannula has a blunt distal end.

88 (New). Apparatus according to claim 79

wherein the tamping instrument and the cannula each have a blunt distal end.

89 (New). Apparatus according to claim 79

further comprising a delivery device to convey material into the cannula.

90 (New). Apparatus according to claim 79

wherein the first instrument is a cavity forming instrument for advancement through the cannula into bone for compressing cancellous bone.

91 (New). Apparatus according to claim 90

wherein the cavity forming instrument includes an expandable structure.

92 (New). Apparatus according to claim 79

wherein the tamping instrument includes at least one marking to visually gauge the advancement of the terminus relative to the distal end of the cannula.

93 (New). Apparatus according to claim 92

wherein the at least one marking indicates when the distal end of the tamping instrument is aligned with the distal end of the cannula instrument.

94 (New). Apparatus according to claim 79

wherein the tamping instrument includes a set point marking spaced from the terminus at a distance generally equal to the length of the cannula.

95 (New). Apparatus according to claim 94

wherein the tamping instrument includes at least one additional marking to visually gauge advancement of the terminus relative to the distal end of the cannula.

96 (New). Apparatus according to claim 79

wherein the first instrument is an obturator.

97 (New). Apparatus according to claim 79

wherein the first instrument is sized and configured to pass completely through the cannula.

98 (New). Apparatus for delivering material into bone comprising

a cannula for establishing a subcutaneous path into bone; and
a tamping instrument for advancement through the cannula comprising a body portion and a handle portion,
the handle portion having a cross-sectional area greater than the cross-sectional area of the body portion.

99 (New). Apparatus according to claim 98
wherein the cannula has a length, and
wherein the length of the tamping instrument exceeds the length of the cannula.

100 (New). Apparatus according to claim 98
wherein a removable handle is carried by the proximal end of the cannula.

101 (New). Apparatus according to claim 98
wherein the cannula includes at least one radiopaque marker.

102 (New). Apparatus according to claim 98
wherein the cannula comprises a generally rigid material.

103 (New). Apparatus according to claim 98
wherein the tamping instrument comprises a generally rigid material.

104 (New). Apparatus according to claim 98
wherein the tamping instrument has a blunt distal end.

105 (New). Apparatus according to claim 98
wherein the cannula has a blunt distal end.

106 (New). Apparatus according to claim 98
wherein the tamping instrument and the cannula each have a blunt distal end.

107 (New). Apparatus according to claim 98
further comprising a delivery device to convey material into the cannula.

108 (New). Apparatus according to claim 98
wherein the tamping instrument includes at least one marking to visually gauge the advancement of the terminus relative to the distal end of the cannula.

109 (New). Apparatus according to claim 108
wherein the at least one marking indicates when the distal end of the tamping instrument is aligned with the distal end of the cannula instrument.

110 (New). Apparatus according to claim 98
wherein the tamping instrument includes a set point marking spaced from the

terminus at a distance generally equal to the length of the cannula.

111 (New). Apparatus according to claim 110
wherein the tamping instrument includes at least one additional marking to visually gauge advancement of the terminus relative to the distal end of the cannula.

112 (New). Apparatus according to claim 98
wherein, when the tamping instrument is fully inserted into the cannula, the handle portion is proximate the proximal end of the cannula.

113 (New). Apparatus for delivering material into bone comprising
a cannula for establishing a subcutaneous path into bone; and
a tamping instrument for advancement through the cannula comprising a body portion and a handle portion, the body portion being sized and configured to substantially fill the cannula when the tamping instrument is fully inserted into the cannula.

114 (New). Apparatus according to claim 113
wherein the cannula has a length, and
wherein the length of the tamping instrument exceeds the length of the cannula.

115 (New). Apparatus according to claim 113
wherein a removable handle is carried by the proximal end of the cannula.

116 (New). Apparatus according to claim 113
wherein the cannula includes at least one radiopaque marker.

117 (New). Apparatus according to claim 113
wherein the cannula comprises a generally rigid material.

118 (New). Apparatus according to claim 113
wherein the tamping instrument comprises a generally rigid material.

119 (New). Apparatus according to claim 113
wherein the tamping instrument has a blunt distal end.

120 (New). Apparatus according to claim 113
wherein the cannula has a blunt distal end.

121 (New). Apparatus according to claim 113
wherein the tamping instrument and the cannula each have a blunt distal end.

122 (New). Apparatus according to claim 113
further comprising a delivery device to convey material into the cannula.

123 (New). Apparatus according to claim 113

wherein the tamping instrument includes at least one marking to visually gauge the advancement of the terminus relative to the distal end of the cannula.

124 (New). Apparatus according to claim 123

wherein the at least one marking indicates when the distal end of the tamping instrument is aligned with the distal end of the cannula instrument.

125 (New). Apparatus according to claim 113

wherein the tamping instrument includes a set point marking spaced from the terminus at a distance generally equal to the length of the cannula.

126 (New). Apparatus according to claim 125

wherein the tamping instrument includes at least one additional marking to visually gauge advancement of the terminus relative to the distal end of the cannula.

127 (New). Apparatus according to claim 113

wherein, when the tamping instrument is fully inserted into the cannula, the handle portion is adjacent the proximal end of the cannula.

128 (New). Apparatus for delivering material into bone comprising

a cannula for establishing a subcutaneous path into bone; and

a tamping instrument for advancement through the cannula comprising a body portion and a handle portion, the body portion having a substantially constant diameter along its length.

129 (New). Apparatus according to claim 128

wherein the cannula has a length, and

wherein the length of the tamping instrument exceeds the length of the cannula.

130 (New). Apparatus according to claim 128

wherein a removable handle is carried by the proximal end of the cannula.

131 (New). Apparatus according to claim 128

wherein the cannula includes at least one radiopaque marker.

132 (New). Apparatus according to claim 128

wherein the cannula comprises a generally rigid material.

133 (New). Apparatus according to claim 128

wherein the tamping instrument comprises a generally rigid material.

134 (New). Apparatus according to claim 128

wherein the tamping instrument has a blunt distal end.

135 (New). Apparatus according to claim 128
wherein the cannula has a blunt distal end.

136 (New). Apparatus according to claim 128
wherein the tamping instrument and the cannula each have a blunt distal end.

137 (New). Apparatus according to claim 128
further comprising a delivery device to convey material into the cannula.

138 (New). Apparatus according to claim 128
wherein the tamping instrument includes at least one marking to visually gauge the
advancement of the terminus relative to the distal end of the cannula.

139 (New). Apparatus according to claim 138
wherein the at least one marking indicates when the distal end of the tamping
instrument is aligned with the distal end of the cannula instrument.

140 (New). Apparatus according to claim 128
wherein the tamping instrument includes a set point marking spaced from the
terminus at a distance generally equal to the length of the cannula.

141 (New). Apparatus according to claim 140
wherein the tamping instrument includes at least one additional marking to visually
gauge advancement of the terminus relative to the distal end of the cannula.

142 (New). Apparatus according to claim 138
wherein, when the tamping instrument fully occupies the cannula, the handle portion
is adjacent the proximal end of the cannula.

143 (New). Apparatus according to claim 66
wherein the tamping instrument comprises a generally rigid material.

144 (New). Apparatus according to claim 143
wherein the cannula comprises a generally rigid material.

145 (New). Apparatus according to claim 144
wherein the cannula includes at least one radiopaque marker.

146 (New). Apparatus according to claim 145
wherein the tamping instrument has a blunt distal end.

147 (New). Apparatus according to claim 146
wherein the cannula is sized and configured to accept insertion and withdrawal of a
first instrument in the cannula, and

wherein the tamping instrument is separate from the first instrument.

148 (New). Apparatus according to claim 147

wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

149 (New). Apparatus according to claim 148

wherein the tamping instrument is sized and configured to substantially fill the cannula.

150 (New). Apparatus according to claim 149

wherein the tamping instrument has a substantially constant diameter along its length.

151 (New). Apparatus according to claim 145

wherein the cannula has a length, and

wherein the length of the tamping instrument exceeds the length of the cannula.

152 (New). Apparatus according to claim 151

wherein the tamping instrument has a substantially blunt distal end.

153 (New). Apparatus according to claim 152

wherein the cannula is sized and configured to accept insertion and withdrawal of a first instrument in the cannula, and

wherein the tamping instrument and the first instrument are different instruments.

154 (New). Apparatus according to claim 153

wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

155 (New). Apparatus according to claim 154

wherein the tamping instrument is sized and configured to substantially fill the cannula.

156 (New). Apparatus according to claim 155

wherein the tamping instrument has a substantially constant diameter along its length.

157 (New). Apparatus according to claim 151

wherein, when the tamping instrument fully occupies the cannula, the handle carried by the tamping instrument is adjacent the proximal end of the cannula.

- 158 (New). Apparatus according to claim 157
wherein the cannula has a blunt distal end.
- 159 (New). Apparatus according to claim 158
wherein a removable handle is carried by the proximal end of the cannula.
- 160 (New). Apparatus according to claim 159
wherein the tamping instrument has a generally blunt distal end.
- 161 (New). Apparatus according to claim 160
wherein the cannula is sized and configured to accept insertion and withdrawal of a
first instrument in the cannula, and
wherein the tamping instrument is separate from the first instrument.
- 162 (New). Apparatus according to claim 161
wherein the handle carried by the tamping instrument has a cross-sectional area
greater than the cross-sectional area of the tamping terminus of the tamping instrument.
- 163 (New). Apparatus according to claim 162
wherein the tamping instrument is sized and configured to substantially fill the
cannula.
- 164 (New). Apparatus according to claim 163
wherein the tamping instrument has a substantially constant diameter along its
length.
- 165 (New). Apparatus according to claim 145
wherein, when the tamping instrument fully occupies substantially the entire cannula,
the handle carried by the tamping instrument is adjacent the proximal end of the cannula.
- 166 (New). Apparatus according to claim 165
wherein the tamping instrument has a blunt distal end.
- 167 (New). Apparatus according to claim 166
wherein the cannula is sized and configured to accept insertion and withdrawal of a
first instrument in the cannula, and
wherein the tamping instrument is separate from the first instrument.
- 168 (New). Apparatus according to claim 167
wherein the handle carried by the tamping instrument has a cross-sectional area
greater than the cross-sectional area of the tamping terminus of the tamping instrument.
- 169 (New). Apparatus according to claim 168

wherein the tamping instrument is sized and configured to substantially fill the cannula.

170 (New). Apparatus according to claim 169
wherein the tamping instrument has a substantially constant diameter along its length.

171 (New). Apparatus according to claim 165
wherein the cannula has a blunt distal end.

172 (New). Apparatus according to claim 171
wherein a removable handle is carried by the proximal end of the cannula.

173 (New). Apparatus according to claim 172
wherein the tamping instrument has a blunt distal end.

174 (New). Apparatus according to claim 173
wherein the cannula is sized and configured to accept insertion and withdrawal of a first instrument in the cannula, and

wherein the tamping instrument is separate from the first instrument.

175 (New). Apparatus according to claim 174
wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

176 (New). Apparatus according to claim 175
wherein the tamping instrument is sized and configured to substantially fill the cannula.

177 (New). Apparatus according to claim 176
wherein the tamping instrument has a substantially constant diameter along its length.

178 (New). Apparatus according to claim 145
wherein the cannula has a blunt distal end.

179 (New). Apparatus according to claim 178
wherein the tamping instrument has a blunt distal end.

180 (New). Apparatus according to claim 179
wherein the cannula is sized and configured to accept insertion and withdrawal of a first instrument in the cannula, and

wherein the tamping instrument is separate from the first instrument.

181 (New). Apparatus according to claim 180
wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

182 (New). Apparatus according to claim 181
wherein the tamping instrument is sized and configured to substantially fill the cannula.

183 (New). Apparatus according to claim 182
wherein the tamping instrument has a substantially constant diameter along substantially its entire length.

184 (New). Apparatus according to claim 178
wherein a removable handle is carried by the proximal end of the cannula.

185 (New). Apparatus according to claim 184
wherein the tamping instrument has a blunt distal end.

186 (New). Apparatus according to claim 185
wherein the cannula is sized and configured to accept insertion and withdrawal of a first instrument in the cannula, and

wherein the tamping instrument is separate from the first instrument.

187 (New). Apparatus according to claim 186
wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

188 (New). Apparatus according to claim 187
wherein the tamping instrument is sized and configured to substantially fill the cannula.

189 (New). Apparatus according to claim 188
wherein the tamping instrument has a substantially constant diameter along its length.

190 (New). Apparatus according to claim 145
wherein a removable handle is carried by the proximal end of the cannula.

191 (New). Apparatus according to claim 190
wherein the tamping instrument has a blunt distal end.

192 (New). Apparatus according to claim 190
wherein the cannula is sized and configured to accept insertion and withdrawal of a

first instrument in the cannula, and

wherein the tamping instrument is separate from the first instrument.

193 (New). Apparatus according to claim 190

wherein the handle carried by the tamping instrument has a cross-sectional area greater than the cross-sectional area of the tamping terminus of the tamping instrument.

194 (New). Apparatus according to claim 190

wherein the tamping instrument is sized and configured to substantially fill the cannula.

195 (New). Apparatus according to claim 190

wherein the tamping instrument has a substantially constant diameter along its length.

196 (New). Apparatus according to claim 79

wherein the ~~tamp~~^{Tamping instrument} has a blunt distal end.

197 (New). Apparatus according to claim 74

wherein the delivery device conveys the material into the cannula at a pressure of no greater than approximately 360 psi.

198 (New). Apparatus according to claim 89

wherein the delivery device conveys the material into the cannula at a pressure of no greater than approximately 360 psi.

199 (New). Apparatus according to claim 107

wherein the delivery device conveys the material into the cannula at a pressure of no greater than approximately 360 psi.

200 (New). Apparatus according to claim 122

wherein the delivery device conveys the material into the cannula at a pressure of no greater than approximately 360 psi.

201 (New). Apparatus according to claim 137

wherein the delivery device conveys the material into the cannula at a pressure of no greater than approximately 360 psi.